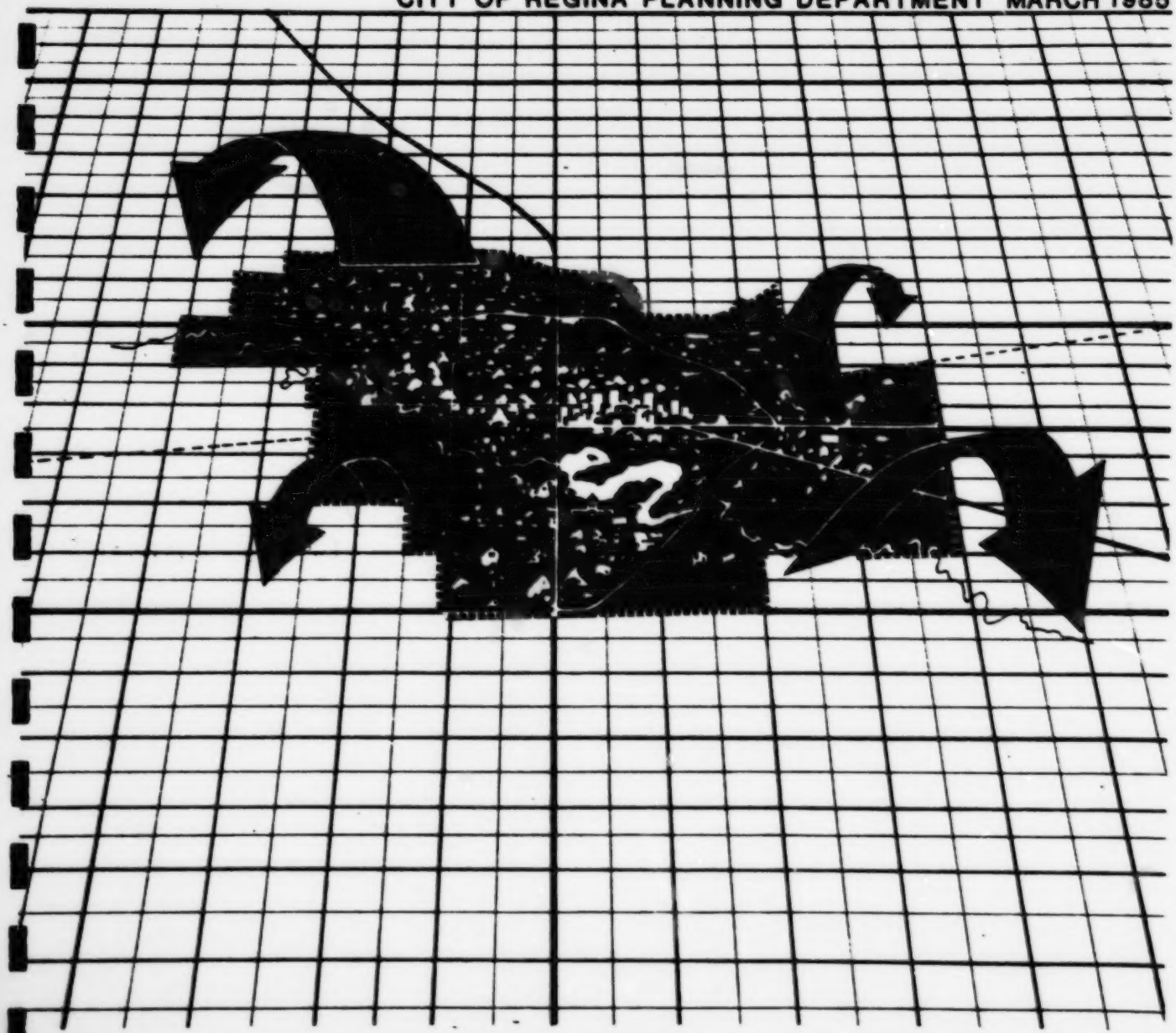
WORKING PAPER ON SUBURBAN GROWTH OPTIONS

CITY OF REGINA PLANNING DEPARTMENT MARCH 1985



WORKING PAPER ON

SUBURBAN GROWTH OPTIONS

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TABLE OF CONTENTS

	Page
SUMMARY	1
1.0 INTRODUCTION	2
2.0 PURPOSE OF THE REPORT	2
3.0 IDENTIFICATION AND DELINEATION OF STUDY AREA	2
4.0 GENERAL DEVELOPMENT CONSTRAINTS AND OPPORTUNITIES	3
4.1 Roadway Network	3
4.2 Rail System	3
4.3 Airport	3
4.4 Sewage Lagoons	3
4.5 Industrial Development	3
4.6 Soil Capability	4
4.7 Groundwater Protection	5
4.8 Development Status	5
5.0 COMPARATIVE SECTOR ANALYSIS	6
5.1 Financing Programs	6
5.2 Comparative Cost Methodology	7
5.3 Comparative Cost Analysis	8
5.3.1 City Services	8
5.3.2 Natural Gas and Electricity Service	10
5.3.3 Telephone Services	10
5.4 Overall Evaluation of Development Areas	10
6.0 LONG TERM GROWTH OPTIONS	15
7.0 CONCLUSIONS	16
Appendix A. BACKGROUND - LAND USE INFORMATION	17
A-1 Southeast Quadrant	17
A-2 Southwest Quadrant	20
A-3 Northwest Quadrant	23
A-4 Northeast Quadrant	26
A-5 Development Cell - Land Areas	29
Appendix B. CAPITAL PROJECTS - BACKGROUND MATERIAL	

READERS NOTE

PLEASE NOTE THAT THE COSTS STATED IN THIS REPORT ARE PRELIMINARY IN NATURE, WERE NOT BASED ON DETAILED ENGINEERING STUDIES, AND ARE TO BE USED FOR COMPARATIVE PURPOSES ONLY (THAT IS, TO COMPARE THE RELATIVE COSTS OF DEVELOPMENT AMONG VARIOUS AREAS ON THE PERIPHERY OF THE CITY.)

FURTHER ANALYSIS WOULD BE REQUIRED BEFORE ANY OF THE SERVICING COSTS FIGURES QUOTED IN THIS REPORT COULD BE USED FOR ANY PURPOSE OTHER THAN COMPARATIVE ESTIMATES.

CITY OF REGINA PLANNING DEPARTMENT

CITY OF REGINA PUBLIC WORKS & ENGINEERING

SUMMARY

The Working Paper on Suburban Growth Options examines utility servicing and planning considerations which affect the long term peripheral growth options for the City of Regina.

The study examines the cost of servicing various development areas which are located on the edge of the built up area of the City. The study findings indicate that:

1) In general, the northwest and southeast areas of the City are the most logical and inexpensive areas to develop for residential use at this time. Significant investment has been made in the past which provides this opportunity.

2) Consideration should be given to the development of land east of Glencairn, north of the Trans-Canada Highway, and south of the CPR line, for residential use. This area had not been previously identified as a potential development area. Additionally, it can be serviced at a comparatively low cost.

3) The risk of groundwater contamination is generally lower in the southern part of the City.

4) In general, provincial assistance and hectarage assessment cover the major capital costs of utility and transportation services in peripheral areas. The City maintains and operates these facilities after one year.

5) Any significant amount of development northeast of the Ross Industrial Park will require a major expenditure for sanitary sewer facilities.

6) The cost and constraints of developing land in the west and southwestern part of the City are significantly greater than other areas, particularly the northwest and southeast.

7) Consideration will have to be given in approximately five years to a major investigation of long term growth options beyond the major constraints (rail corridor, Trans-Canada Highway, and Airport), affecting long term City development.

8) Consideration will have to be given in approximately five years to the long term (20 to 30 years) use of lands presently occupied by Regina Airport facilities.

1.0 INTRODUCTION

The Working Paper on Suburban Growth Options provides an analysis of the opportunities and constraints faced when considering peripheral suburban development. Engineering, physical, and cultural elements must be identified, evaluated and debated prior to decisions being made. This report concentrates on the identification of critical factors, and a comparative evaluation of physical growth options. This report does not present an urban growth strategy, since other considerations must also be addressed, such as redevelopment and infill opportunities, overall growth policy for the City, population growth, and changing demographic characteristics.

The provision of sewer, water, and transportation services are important considerations when considering the development of peripheral areas. Development of new areas may require new trunk sewers, arterial roadways, or new transit facilities. This study will identify how these factors affect various development areas and to report on the comparative economic costs of considering development in one area rather than another.

2.0 PURPOSE OF THE REPORT

The purpose of this study is to determine the engineering feasibility (water, storm sewer, sanitary sewer, transportation, electricity, and telephones) of servicing various areas of the City and outlying areas to achieve the most economic and efficient use of utilities by:

1) Identifying unused capacities in the present system;

2) Identifying areas and costs of servicing land which can be serviced through extension of the current systems; and,

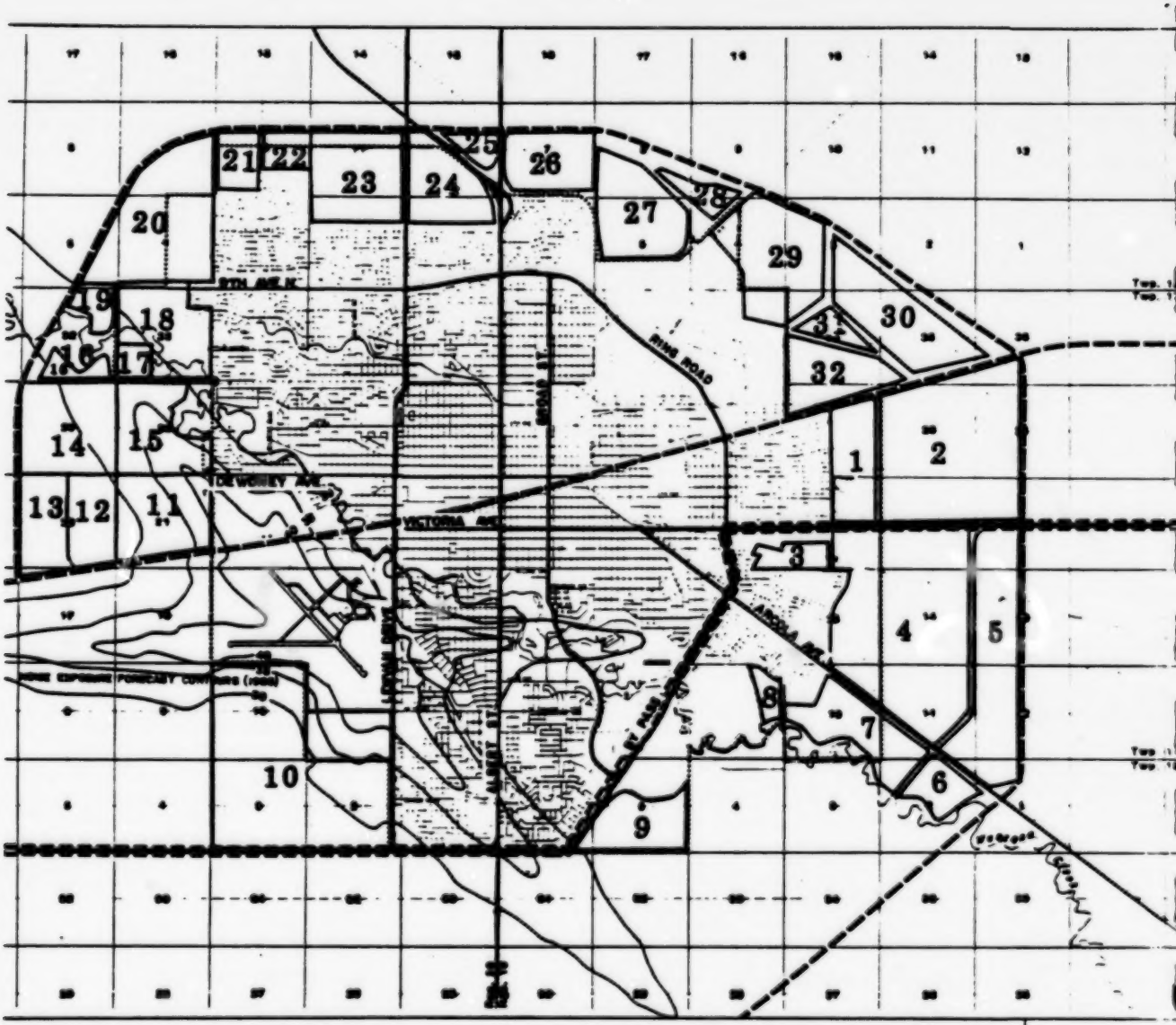
3) Identifying major constraints affecting the development of possible "outlying development areas".

3.0 IDENTIFICATION AND DELINEATION OF STUDY AREA

For purposes of this study, it is assumed that first priority will be given to development of those land areas within the major constraints surrounding the City. These major constraints include the proposed rail corridor to the north, west, and east, the Airport and associated noise constraints to the southwest, the Trans-Canada Highway and bypass to the south and southeast, and Wascana Creek to the southeast.

Secondly, areas outside these major constraints will be examined with the purpose of identifying in a general way, utility and transportation constraints, while pointing out the major decisions required once development within the major constrained area is completed.

Figure 1 shows 32 development cells and the major constraint barriers affecting the City's future direction of growth. The land areas for the development cells are contained in Appendix A.



CITY OF REGINA
DEVELOPMENT CELLS

FIGURE 1

4.0 GENERAL DEVELOPMENT CONSTRAINTS AND OPPORTUNITIES

4.1 Roadway Network

The Trans-Canada Highway and bypass represent a major physical barrier to growth on the City's southeast periphery. Lewvan Drive combined with the Airport land defines the City's western edge. Development of lands beyond these barriers would provide a major shift from that of Regina being a compact city to a city which has no identifiable physical limits to growth.

4.2 Rail System

A major study and program of rail relocation has been ongoing for some time. The relocation of rail facilities in the west, north and east will define to a very great extent those peripheral edges of the City into the first half of the 21st Century. A decision of where to develop land beyond the proposed rail corridor will determine the City's long term direction of growth.

4.3 Airport

The Regina Airport facility represents a major obstacle to City expansion in the southwest. While the present terminal facilities are being upgraded, in the long term (30 years or more) it would not be unreasonable to look at alternate locations for Airport facilities in order to provide for the possibility that Airport land may have very high development potential. For purposes of this exercise the Airport is recognized as a facility which will exist at its present location for the foreseeable future.

4.4 Sewage Lagoons

The developed portions of the northwest and potential development areas in the northwest are constrained by their proximity to the sewage lagoons, While there is no provincial or civic regulation restricting development encroachment in proximity to the sewage lagoons, the City should consider a regulation, similar to that proposed under Provincial subdivision regulations regarding the location of lagoons and development in proximity to lagoons.

4.5 Industrial Development

The two principal industrial areas in Regina and immediate area are the North Regina Industrial Subdivison and the Ross Industrial Park. These two areas limit the extent of non-industrial uses in the north and northeast parts of the City. At the same time, however, opportunity exists for a substantial amount of additional industrial development to occur in these areas. This opportunity has been identified in the Study to Determine a Comprehensive Industrial Development Strategy, prepared for the City of Regina.

4.6 Soil Capability

The use of prime agricultural land for urban purposes is a concern to prairie residents. The City of Regina is located on and adjacent to mainly Class 2 and 3 agricultural land. Thus, any expansion of the built up area of the City is bound to be in relatively good agricultural land.

Environment Canada's report, The Urbanization of Rural Land in Canada, 1966-1971 and 1971-1976, shows that between 1966-1971, 380 hectares (938 acres) of land was converted to urban use, an average of 76 ha (188 acres) per year. Between 1971 and 1976, 1,164 hectares (2,876 acres) or an average of 233 ha (576 acres) per year, was converted to urban use in the City of Regina. About 97% of the converted land is Class 2 and 3.

Planning Department estimates from 1978 to 1983 indicate an annual land absorption rate of 101 hectares (240 acres) per year for residential purposes. It is realistic to assume that land used for residential purposes represents approximately one-half of that land absorbed, since a significant amount of land is used in urban centres for industry, roadways, major open spaces, commercial and other uses.

The rate of increase in land conversion can be attributed to two principal factors:

1) The average household level of occupancy decreased from 3.30 in 1971 to 2.95 in 1976, and to 2.73 in 1983; resulting in a greater need for housing units.

2) The City's population increased from 139,465 in 1971 to 149,593 in 1976, up to 162,984 by 1981.

Recent observations suggest that the rate of land conversion has slowed down .

From the City's perspective, land is viewed as a very important resource, and care is required to ensure that when peripheral land is used, it is developed in an efficient manner. As important, however, is the development of a land use policy in the built-up area, to ensure that vacant or underutilized land is developed for appropriate urban purposes.

4.7 Groundwater Protection

Protection of groundwater resources is of major importance to the City of Regina, since at present, approximately 35% of water used for domestic purposes is drawn from this source. A study prepared for the City, Aquifer Contamination Risk Evaluation, shows that in general, the southern part of the City is not a high risk area for aquifer pollution. The highest risk areas are concentrated in the northwest and northeast, well beyond the immediate built-up area of the City. A belt of land considered moderately sensitive exists north of the northwest sector, the Uplands area, and Ross Industrial Park. The existence of the aquifer pollution hazard suggests that development areas with low risk be given preference over high risk areas. For detailed information on the aquifer, the reader is referred to the Aquifer Contamination Risk Evaluation report. It should be noted that development is, and will be, occurring in the northern part of the city. However, the City has initiated measures to ensure environmental protection through appropriate bylaws and monitoring systems.

4.8 Development Status

Land on the City's periphery has various types of development status, ranging from subdivision approval to inclusion within a sector plan. City residents have bought houses, businesses have been established, and public investments have been made on the basis that these plans would be implemented. It is appropriate that the City honor its commitments made in the past.

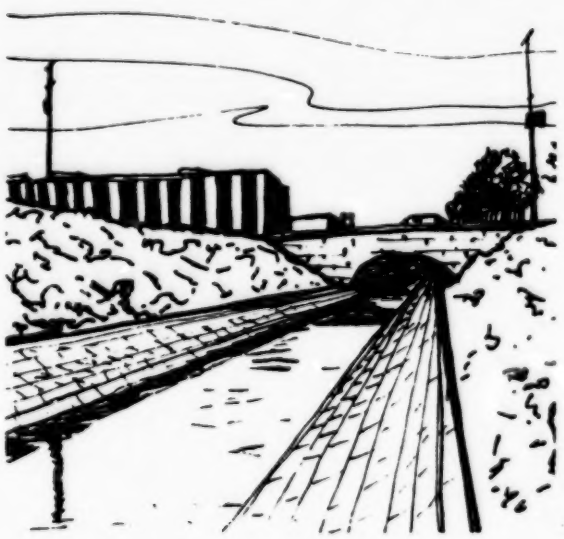
More detailed information on land use, soil capability, soil conditions, rail relocation impact, and other information on the various development cells, can be found in Appendix A.

5.0 COMPARATIVE SECTOR ANALYSIS

5.1 Financing Programs

The financing of roads, sewers, storm drainage and water is a complex arrangement with initial capital costs being shared between the City, Province and developers. The costs may be included in the cost of buying a lot and home in a new developing area (prepaid services), or indirectly as reflected in the general city mill rate, or provincial taxation. The greatest burden appears to be borne by the purchasers of residential property in a suburban area.

Provincial assistance grants are used for the construction of roadways classified as arterial or freeways. An example of this type of project is Prince of Wales Drive, where provincial grants cover 50% of eligible construction costs. Projects such as the Arcola Avenue upgrading can also receive up to 50% provincial assistance.



Hectarage assessment, paid by developers to the City is designed to pay for urban services which the City provides to service a subdivision. Examples include arterial roadways, and sewer trunks. Developers are responsible for the construction of all services within the boundaries of the subdivision and maintenance of these facilities for a period of one year. When a developer "oversizes" a facility such as a sewer line in order to provide services to another subdivision, the developer is eligible for a rebate from the hectarage assessment pool.

The hectarage assessment levy is collected as areas are subdivided, but there is no large "prepaid" pool from which to construct new facilities. Therefore, when there is little development activity the hectarage assessment fund is low, and when the development activity level is high, a significant amount of funds become available to construct projects. Hectarage assessment funds are also used to finance projects which may not be located close to the subdivision, but are required as a result of the subdivision development (e.g. increased traffic volumes). An example is the Arcola Avenue upgrading, where hectarage assessment will cover 25% of the project cost.

In considering suburban subdivision development financing three points become clear:

1. The Province makes a substantial contribution to the development of the arterial road network through the Urban Assistance Program.

2. Hectarage assessment, paid by the development industry, is a major financial contribution for projects which link subdivisions to City networks and facilities which have to be upgraded as a result of subdivision development.

3. The City itself pays comparatively little capital cost of major transportation, sewer and water projects. The City's responsibility occurs after one year when it becomes responsible for maintenance of utility and transportation systems within subdivisions. Other capital projects are solely the responsibility of the City. (Sewage treatment and waterworks are both self-financing utilities).

The City's policy with respect to hectarage assessment is to combine funds from various subdivisions into one central fund and pay for projects as they are required. Given the limited amount of development which is occurring within any one area, this appears to be a reasonable policy. However, one implication of this policy is that it does not encourage the development of low cost areas before high cost areas. Thus, it can be argued that funds from "low cost" areas are used to subsidize development in "high cost" areas. If separate "hectarage pools" existed for different areas of the City, it would be reasonable to assume that developers would first develop low cost areas. The principal disadvantage of separate hectarage "pools" is that the situation may arise where not enough funds are collected to finance a major project necessary for the area.

5.2 Comparative Cost Methodology

This portion of the study will identify the major differential costs of developing various development cells. The projects included will be major capital road, sewer and water projects to service an area. Critical thresholds will be identified. The costs of local and collector roads and lighting are not included, since these facilities are required in all subdivisions, and are usually constructed for a similar cost per kilometre.

The principal source for the cost estimates is the Five Year Capital Program (1984-1988). Inhouse estimates for projects not included in the budget have also been included. The estimates have been calculated on a unit cost basis and more detailed estimates are required for budgetary purposes.

The reader should note that the costs have been developed and costed in 1984 dollars. The costs provided do not include local servicing costs, land acquisition costs, or financing costs. The costs which have been prepared are for comparison purposes only, and do not necessarily reflect actual development costs. The cost per hectare figures do not account for dollars previously spent for provision of trunk services or arterial roadways to new development areas.

Cost estimates for the northwest and southeast are considered most critical since major portions of these two areas have been approved for long term residential development. Additionally, the cost estimates for the northwest and southeast are somewhat more comprehensive, as the detailed infrastructure requirements can be more readily determined.

5.3 Comparative Cost Analysis

5.3.1 City Services

The Planning Department in conjunction with Public Works and Engineering has identified the major cost associated with developing various areas of the City. A summary of these comparative costs is outlined in the following tables. More detailed project information is set out in Appendix B of this report. The estimates for the southwest and northeast should be qualified to the extent that on a general comparison basis,

1) There is a premium on the development of the southwest, to the extent that the costs of developing Cell 10 are estimated to be 50-75% higher than cells 1-19 (southwest), or 20-25 (northwest) as a result of the need to extend major sewer trunks to service the whole area. A portion of Cell 10 could be serviced through the extension of the Pasqua Street sanitary sewer. However, any substantial amount of development would require construction of a sanitary sewer trunk to either the McCarthy Pump Station, or the lagoons.

   Detailed servicing costs for possible long term development have not been estimated for this area since it is extremely difficult to delineate an appropriate development area. Land use is also tied into the question of the long term use of airport lands and facilities. When the airport question is resolved, more detailed analysis can be undertaken. Pending resolution of this question this area has not been considered for intermediate stage development.

2. Cells 11 to 17 would require trunk extensions to the site, therefore, the costs would be approximately 10% higher than Cells 1-9 or 20-25.

Table 1 TOTAL AREA ANALYSIS - SUMMARY

	NORTHWEST (Cells 14-25)	%	NORTHEAST (Cells 1, 2,26-32)	%	SOUTHEAST (Cells 3-9)	%	SOUTHWEST (Cells 10-13)	%	TOTAL	%
Storm Drainage	6,368,000	(39.4)	4,590,000	(34.7)	15,375,000	(50.8)	N/A	(0)	26,333,000	(43.9)
Streets and Bridges	7,559,000	(46.8)	7,293,000	(55.1)	10,636,000	(35.1)	282,000	(100)	25,770,000	(43.0)
Water	1,029,000	(6.4)	600,000	(4.5)	1,630,000	(5.4)	N/A	(0)	3,259,000	(5.4)
Domestic Sewers	1,188,000	(7.4)	760,000	(5.7)	2,644,000	(8.7)	N/A	(0)	4,592,000	(7.7)
	$16,144,000	(100%)	13,243,000	(100%)	30,285,000	(100%)	282,000	(0)	59,954,000	(100%)

3. Cells 28-31 can be readily serviced except for sanitary sewer. The costs of providing sanitary sewer trunks would be high. A portion of Cell 29, in the City, can be serviced through the present system. The utility systems have capacity to service Cell 32.

4. Cells 19, 26, and 27 would be extremely costly to service, as underground trunks would have to be extended for long distances to service this area.

5. Cell 9, physically isolated in the southeast, can be readily serviced through the extension of facilities from Whitmore Park. There is no identifiable "premium cost" in developing this area.

Table 2 provides detailed cost comparisons for smaller subareas within the three principal development quadrants. Figure 2 provides generalized sewer and water servicing cost data.

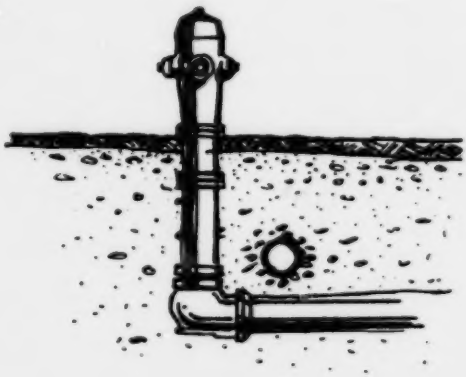
The findings confirm four expected results.

1. Road construction and storm sewer projects are a major expenditure in comparison to other utilities.

2. Storm drainage costs are unusually high in Regina mainly because of the flat topography.

3. Water and domestic sewers are the most inexpensive utility items.

4. Servicing costs per hectare increase dramatically when utility services have to be extended to a development site.



There were also some unexpected results.

1. The average cost of developing land in the three principal study areas varies significantly.

2. Utility and transportation servicing is least expensive in an area (Cells 1, and 2), not included within approved sector plans, or within areas designated under the RSVP Policy and Implementation Document.

Table 2 - COMPARATIVE DEVELOPMENT COSTS[1]

	NORTHWEST (Cells 18, 20-24)	%	SOUTHEAST (Cells 3-8)	%	NORTHEAST (Cells 1, 2)	%	TOTAL	%
Storm Drainage	6,368,000	(39.4)	15,375,000	(50.8)	4,590,000	(43.4)	26,333,000	(46.2)
Water	1,029,000	(6.4)	1,630,000	(5.4)	600,000	(5.7)	3,259,000	(5.7)
Sanitary Sewers	1,188,000	(7.4)	2,644,000	(8.7)	760,000	(7.2)	4,592,000	(8.1)
Streets & Bridges[2]	7,559,000[3]	(46.8)	10,636,000	(35.1)	4,614,000	(43.7)	22,809,000	(40.0)
TOTAL	16,144,000	(100%)	30,285,000	(100%)	10,564,000	(100%)	56,993,000	(100%)
LAND AREA (ha)	1,123		1,426		741		3,290	
Cost/ha	$14,378/ha		21,238/ha		14,256/ha		16,934/ha	
Cost per dwelling unit @ 5 d.u./acre (12.3/ha)	1,169		1,727		1,159		1,377	

1. Includes budget and non-budget items

2. Includes local improvements for new construction, but excludes "catch-up" programs.

3. Does not include Levvan-Ring Road Interchange at 6.8 million. When it is included, cost/ha increases to $20,430/ha.

Note: These costs do not include internal subdivision costs such as local or collector roads, lighting, curbs, gutters, etc.

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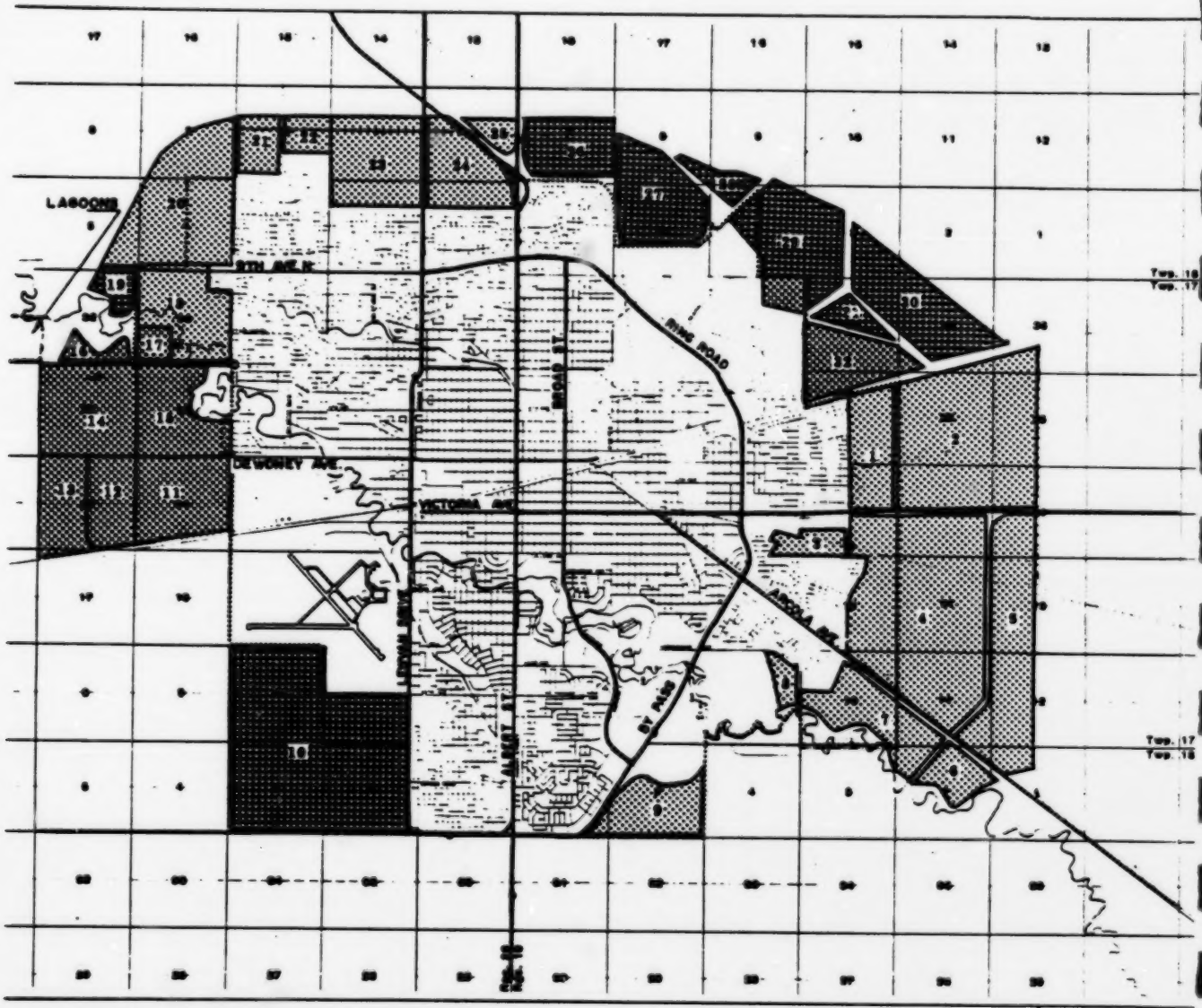


CITY OF REGINA
GENERALIZED SEWER AND WATER COSTS

FIGURE 2

5.3.2 SPC Services

Saskatchewan Power Corporation provides both natural gas and electrical services to Regina.

Natural Gas

The natural gas network servicing homes and businesses in Regina is fed by a major feeder line which is located near the City's outer edges. Development Cells 21, 22, 23 and 24 in the northwest, can be serviced from an existing district station. Similarly, Cells 3, 6, 7, and 8, can be serviced from a Town Boundary Station located in Section 10 south of Arcola Avenue. Other development cells can be serviced by linking elevated pressure lines into the main feeder line. The cost of each of these stations and line is approximately .25 million dollars. The land requirements for a district regulator station are approximately 15m x 40m ($600m^2$, 6500 $ft.^2$). Figure 3 shows the low cost areas for natural gas servicing. Providing gas service to the other cells is somewhat higher.

Electricity

SPC has indicated that power services exist in the vicinity of all development cells, therefore, variance in cost to provide services are not significant. The type of development which occurs within each development cell has a more significant impact depending on whether underground or overhead electrical service is required. Therefore, it is concluded that the provision of electrical services is not a major factor in evaluating various development uses.

5.3.3 Telephone Services

Sask Tel is responsible for the delivery of telephone service in the City of Regina. Cells 18, 20, 21, 22 and the west 1/2 of 23 have been identified as the most readily serviceable area in the northwest. In the southeast, Cells 1-8 are the easiest and most economic to service. The most costly cells to service are 10, 25, 26, 27 and 28. Figure 4 shows the generalized comparative cost for telephone services.

5.4 Overall Evaluation of Development Areas

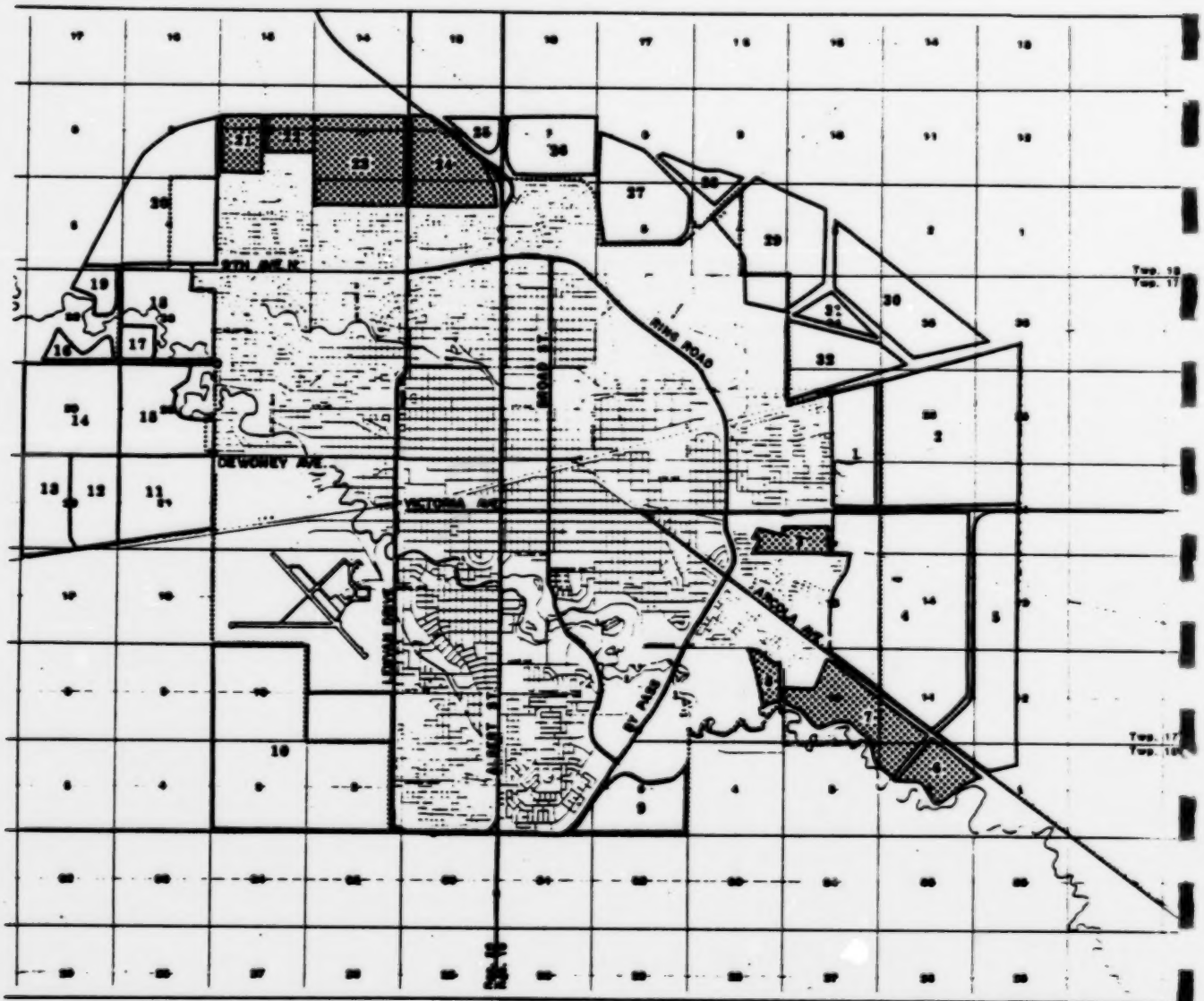
Development sites having the following characteristics shall be considered as high priority development areas.

1. Utility services are developed to the edge of the site and capacity exists to serve the area.

2. The impacts of developing the site can be readily handled by the existing utility and transportation systems in the built-up area of the City.

3. The proposed land use will enhance the City's urban environment.

4. Development sites which represent a low risk to groundwater pollution.



CITY OF REGINA
S.P.C. NATURAL GAS SERVICE

FIGURE 3

5. Sites which have received concept, subdivision or sector plan approval.

6. Sites which are located in areas covered by approved sector plans.

The following criteria have been used in identifying medium priority development areas.

1. Utility trunk lines are required to be extended relatively short distances to development sites.

2. Development of these sites may necessitate major expenditures to improve the overall utility or transportation network.

3. Sites which are included in sector plans approved by City Council.

4. Sites which represent logical extensions of high priority development areas.

The following criteria are applied in identifying low priority development areas.

1. Major trunk lines or road improvements are required to reach the area, or oversizing or upgrading is required in adjacent areas to handle development impacts.

2. Major drainage problems exist.

3. Sites are not recognized by land use policy documents approved by City Council.

4. Sites are located in areas considered moderately to highly sensitive to aquifer pollution.

5. Development does not represent a logical extension of the present City structure.

In addition to the above three classes of development areas, land has been designated as urban reserve where there is:

1. No immediate identifiable need for the land at this time, yet the land represents a land resource which will likely have long term development potential;

2. An extremely high cost to the development of that area. For example, major new trunk lines would be required to provide utility services to the site; and

3. The land has received designation under the Wascana Authority Master Plan.

CITY OF REGINA
TELEPHONE SERVICING COST

FIGURE 4

On the basis of the above criteria, Figure 5 shows the designations given to the various development areas.

Table 3 provides a summary comparative analysis of major constraints as they affect the development areas.

Critical Thresholds

A number of critical thresholds emerge in evaluating the development areas.

1. In the northwest, a critical element is maintaining a rigid staging scheme. It is concluded that short term economic savings can be achieved if growth is directed to either Cells 21 to 24, or Cells 18 and 20, but not to both areas at once.

   The estimated developed cost of Cells 21 to 24 (534 ha) is $16,217/ha. The estimate includes the cost of Dewdney Avenue widening at 2.08 million dollars.

   The cost of developing cells 18 and 20 (589 ha) including Dewdney Avenue upgrading ($460,000), and Courtney Street (2.95 million), is estimated at $9,564,000 or $16,237/ha.

   The following table outlines the comparative costs:

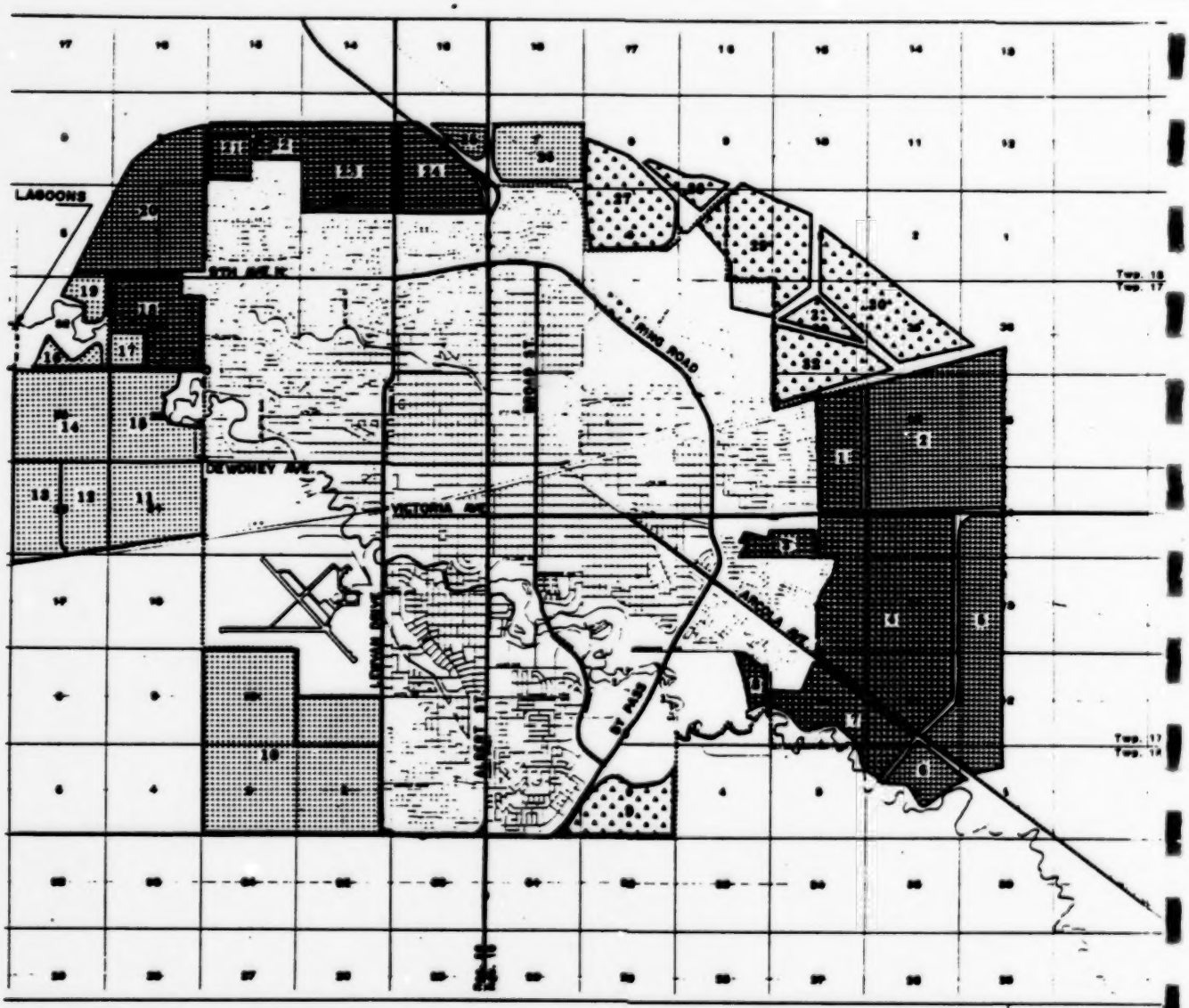
COMPARATIVE DEVELOPMENT COSTS

	Cells 21-24	Cells 18 & 20
Storm Sewer	$4,075,000	$2,293,000
Streets	4,149,000	5,490,000
Water	0	1,029,000
Sanitary Sewer	436,000	752,000
Total	8,660,000	9,564,000
Land Area	534 ha	589 ha
Cost/ha	$16,217	16,237

   The principal consideration is to avoid costs associated with developing both subareas at the same time. If Cells 21 to 24 are developed prior to Cells 18 and 20, as generally indicated in the Northwest Sector Plan, the construction of all or part of Courtney Street can be delayed, until Cells 18 and 20 come on stream.

   This conclusion confirms the northwest phasing scheme with the exception of Phases 4 and 5.

2. The study findings confirm the general direction of growth in the southeast. The construction of Prince of Wales Drive ($3.2 million), is a major commitment, which can readily accommodate three neighbourhoods to the east. The next major threshold beyond that is the necessity of and possible alignment of Outer



CITY OF REGINA
PRIORITY OF DEVELOPMENT AREAS

FIGURE 5

Drive, since the study area (Cells 4 and 5) extend beyond the Southeast Sector Plan. The necessity and scale of Outer Drive (estimated at $2 million), warrants a review as a result of low density development, possible extension of the southeast sector, and the proposed rail corridor buffer policy.

3. A second critical threshold in the southeast is the construction of a storm trunk near Outer Drive to serve the eastern portion of Cell 4 and all of 5. The construction of this line will establish the extension of the Southeast Sector to the proposed rail corridor.

4. Cells 1 and 2 in the northeast are a new development option for the City. Commercial and residential subdivisions have received approval in Cell 1. Cell 2 (595 ha) is an area which can be readily developed at a low cost. More importantly, services can be extended into the area on an "as required basis", without an initial high investment to "open" the area.

5. Cell 9, because of its location and serviceability, can be developed in an independent manner without affecting other development areas. No critical thresholds have been identified which would affect the development of this site.

6. In the southeast, it is desirable from a community development perspective, to develop Cell 3 (Cindercrete Products and Consolidated Block and Pipe Limited (BACM) sites) before approving developments immediately to the east. Cell 3 is a logical extension of the present built-up area of southeast Regina.

TABLE 3

SUMMARY OF MAJOR DEVELOPMENT CONSTRAINTS

SECTOR	SOIL CAPABILITY AGRICULTURE	AIRPORT (NEF)	AQUIFER CONTAMINATION RISK	RAIL RELOCATION IMPACT	DEVELOPMENT COSTS
Northwest (Cells 18, 20-24)	Class 2	Not applicable	Fairly to moderately sensitive	Severe	Low
Southeast (Cells 3-8)			Not sensitive to fairly sensitive	Moderate	Low
Northeast (Cells 1-2	Class 2	Not applicable	Fairly sensitive	Severe	Low
Northeast (Cells 26-32)			Fairly to highly sensitive	Positive for industrial use	Medium High
Southwest (Cell 10)	Class 2	Severe	Not sensitive	None	High
Southwest (Cells 11-15)[1]	Class 2	Severe	Fairly sensitive	None	Medium High

[1] Includes sanitary service, storm sewer, water, and roadway capital costs.

6.0 LONG TERM GROWTH OPTIONS

This section of the report deals with long term servicing considerations for lands lying beyond the major physical growth barriers and study areas.

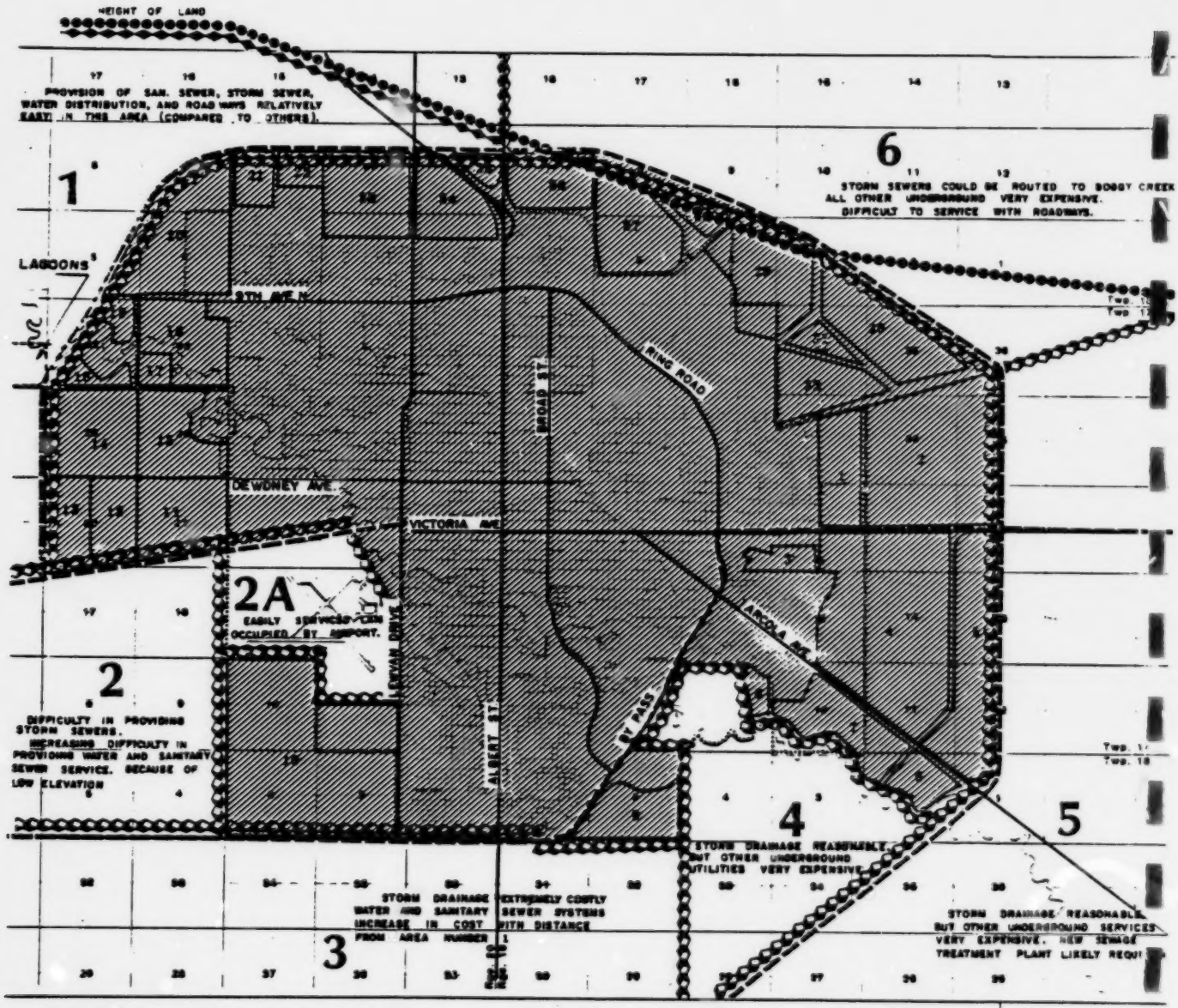
Seven distinct subareas exist with a unique set of servicing constraints. The constraints are identified in Figure 6.

Recognition of these constraints results in the need for the City to seriously examine long term growth opportunities. It is possible that decisions which meet the City's immediate needs may in fact jeopardize longer term growth demands (20-30 years+).

The identification of these constraints is designed to set the stage for the investigation of long term direction of growth options. It is not necessary to initiate these studies immediately, but steps should be taken in five years (1989-1990) to address two principal questions:

1. The comparative costs and benefits associated with long term growth options. The costs of utility servicing and the impacts on transportation systems and urban form should be identified and debated.

2. The long term use of the present airport site should be addressed. The airport facilities represent a considerable constraint to long term growth options. The land which the airport occupies has been identified as readily serviceable. Additionally, the possible development of this site to an alternate use(s) would represent a logical extension of the developed area of Regina, with the benefit of close proximity to the Downtown. Therefore, it is appropriate that a study be initiated in five years to consider the long term location and use of the present airport site in 20 to 30 years. An investigation is justified in order to ensure that Federal Government investment in the facility is protected, and secondly, that municipal land use policy can be formulated to possibly provide for long term alternate uses for the airport site and immediate environs.


HEIGHT OF LAND
PROVISION OF SAN. SEWER, STORM SEWER, WATER DISTRIBUTION, AND ROAD WAYS RELATIVELY EASY IN THIS AREA (COMPARED TO OTHERS).
1
6
STORM SEWERS COULD BE ROUTED TO BOGGY CREEK ALL OTHER UNDERGROUND VERY EXPENSIVE. DIFFICULT TO SERVICE WITH ROADWAYS.
LAGOONS
9TH AVE N
RING ROAD
ROAD ST
DEWDNEY AVE
VICTORIA AVE
2A
EASILY SERVICED-OPEN OCCUPIED BY AIRPORT.
ARCOLA AVE
BY PASS
ALBERT ST
2
DIFFICULTY IN PROVIDING STORM SEWERS. INCREASING DIFFICULTY IN PROVIDING WATER AND SANITARY SEWER SERVICE. BECAUSE OF LOW ELEVATION
4
5
STORM DRAINAGE REASONABLE BUT OTHER UNDERGROUND UTILITIES VERY EXPENSIVE
STORM DRAINAGE EXTREMELY COSTLY WATER AND SANITARY SEWER SYSTEMS INCREASE IN COST WITH DISTANCE FROM AREA NUMBER 1
3
STORM DRAINAGE REASONABLE BUT OTHER UNDERGROUND SERVICES VERY EXPENSIVE. NEW SEWAGE TREATMENT PLANT LIKELY REQUI

CITY OF REGINA
LONG TERM GROWTH CONTRAINTS

LEGEND

MAJOR TRANSPORTATION BARRIER

PRINCIPAL SERVICE AREAS

FIGURE 6

7.0 CONCLUSIONS

The following conclusions are reached as a result of Planning Department and Public Works and Engineering investigations into utility servicing and planning.

1. That the Northwest and Southeast sectors be maintained as the priority development areas for suburban residential development in the immediate future on the basis of utility servicing costs and planning considerations.

2. That the Northwest Sector and Southeast Sector Plans be reviewed and amended to include the land areas which represent an extension of those areas up to the proposed rail corridor including the proposed buffer area.

3. That in the Northwest Sector, the phasing scheme be reviewed in order to provide for more orderly and economical development.

4. That the Glencairn Extension (Development Cell 2) be identified as a second priority residential development area, and utility servicing capacity be reserved to serve the area. Cell 1, the Parkridge Subdivision area, is a high priority development area.

5. That the land lying south of Dewdney Avenue and west of Lewvan Drive, including the airport lands be included in a sector plan, with the express purpose of developing a land use plan for this area. The study should include a detailed analysis of utility servicing alternatives.

6. That a sector plan be prepared for the land lying east of Albert Street and north of the CP rail line beyond the Ring Road to address the question of land use beyond Ross Industrial Park and adjacent lands.

APPENDIX A

BACKGROUND LAND USE INFORMATION

Appendix A - BACKGROUND LAND USE INFORMATION

A-1 SOUTHEAST QUADRANT

Location

The southeast quadrant, south of Victoria Avenue and east of Albert Street, contains 7 development cells with a total of 1,572 hectares (3,884 acres).

This area is largely contained within the Southeast Sector Plan with the exception of the most easterly area (Development Cells 5, 6 and 9).

Present Use and Planning Status

In the southeast quadrant, Development Cell 3 is used by two major concrete product suppliers (Cindercrete Products and BACM). Development Cell 4 has Regina Memorial Gardens on Highway #1 (Section 23). Development Cell 5 has two greenhouse sites, a dog kennel, and a residence. Development Cell 6 has 3 residences and a greenhouse.

The Southeast Sector Plan, adopted by City Council, sets out the framework for the development of the Southeast Sector. Development Cells 3, 4, 7 and 8, were included within the Southeast Sector Plan. Development Cells 5 and 6, 415 acres (1,024 hectares), have been added into the total development area. This has occurred because of the available utility servicing capacity as a result of the low densities being achieved in current subdivision as compared to the prescribed densities.

The City's boundary currently includes Cells 3, 8 and parts of 4 and 7. If it is considered desirable to develop in the Southeast Sector, annexation will be required in the immediate future since land reserves in the area are quickly being developed.

Soil Capability

Land within the southeast quadrant is generally considered to be Class 2 agricultural land, meaning that the soil has only moderate limitations that restrict the range of crops or require moderate conservation practices.

The land is not conducive to waterfowl, having moderately severe limitations (Class 5) as a result of the flatness of the land limiting the development of permanent wetlands. The exception is the marshlands which exist along Wascana Creek. This watercourse represents a significant wildlife resource in the Regina area.

The southeast quadrant has land which has low to moderate capability for outdoor recreation (Classes 6 and 5). Recreation opportunities exist along Wascana and Pilot Butte Creeks. However, in many cases these lands require enhancement in order to serve as an outdoor recreation base for an urban population.

The land is rated as having severe limitations for the production of deer. The flatness of the land represents a major constraint to a deer population.

For more detailed information, the reader is referred to Canada Land Inventory mapping for the Regina region prepared by Energy, Mines and Resources, Ottawa.

Floodplain Conditions

The flood plain regimes of Wascana and Pilot Butte Creeks represent a minor constraint to the development of Cells 3, 6, 7 and 8. While development is not allowed in the 1:500 flood plain, the flood plain represents a unique recreational opportunity. The development of a linear park system along the creek lands, may enhance the area's overall environment.

Soil Conditions

The major portion of the southeast quadrant has a clay cover of 2 to 8 metres. The most easterly strip of land (1.2 to 2.4 kilometres) parallel to the north-south rail track has greater than 8 metres of clay cover. It should be noted that ground cover is only one factor taken into consideration when pollution sensitivity is considered. Other factors include: hydrologic character of the area, capping material and degree of spill attenuation.

Protection of the groundwater aquifer is a major concern to the City, since it presently relies on groundwater for part of its domestic water supply. The most westerly portion of the southeast quadrant, consisting of Development Cells 9, 3, 8 and the most westerly portions of Cells 4 and 7, is not considered sensitive for aquifer contamination. Cells 5, 6 and the major part of Cell 4 are considered fairly sensitive for purposes of aquifer contamination.

Pipeline-Hydro Rights-of-way.

An SPC pipe line across the southerly portion of Development Cell 6. It does not appear to present a major development constraint in this area.

Rail Relocation Impact

The eastern boundary of the southeast quadrant is formed by the CP Tyvan line. The Glenavon line in the built-up area of the City has been removed, but a remaining portion still severs Cells 4 and 5. It is expected that the rail right-of-way will be redeveloped as the City grows to the east

While rail tracks form the easterly boundary of Development Cell 5, the existence of the line should not have a significant impact on lands immediately abutting those lines. That is, it is not expected that unusual development or noise buffering requirements will arise.

Roadway System

The southeast quadrant is served by both the Trans-Canada and Highway #33 (Arcola Avenue). These roadways constitute a major infrastructure already in place to serve the southeast. The addition of the Glenavon Expressway as part of the City's road network will facilitate east-west traffic movements within the City. North-south vehicular movements can be accommodated through the construction of Prince of Wales Drive, Park Drive, Mid East Road, and Outer Drive, as set out in the Recommended Road Network.

A-2 SOUTHWEST QUADRANT

Location

The southwest quadrant, south of Dewdney Avenue and west of Albert Street, has four development cells containing a total of 1,343 ha (3,318 acres).

There is no approved Sector Plan for this area. The Airport, operated by the Federal Ministry of Transport, is the major urban use impacting on the area. The Airport itself is undergoing major renovations and a second parallel runway is proposed. The NEF (noise exposure forecast) contours associated with runway alignments significantly constrain potential land uses in the area. The Regina Airport Study, 1977 provided a number of options for airport facilities. A finalized Airport study and a separate land use study are to be undertaken by the Ministry of Transport.

Present Use and Planning Status

With the exception of the following, land in the southwest quadrant development cells is used for agricultural purposes.

In the southwest quadrant, Development Cell 10 is used primarily for agricultural purposes, with the exception of the Regina Club site, Transport Canada facilities, and one residence. Part of the southwest quarter of Section 21, in Development Cell 11, is the site of Western Clay products. The remainder of Section 21, and Section 29 (Development Cells 12 and 13), is used for agricultural purposes.

Development Cell 10 is located outside the City limits with the exception of the southerly half of Section 21 which is within the City. Development Cells 11, 12, and 13 are outside the City limits.

Land use in the development cells is currently regulated through the Regina Planning District Zoning Bylaw with the exception of a portion of Development Cell 10 (S 1/2 of Section 11), which is zoned AR-Airport Restricted under the City of Regina Zoning Controls.

Recently approved changes to the District Bylaw have the north halves of Sections 2 and 10 in Development Cell 10 zoned A (sp) Special Agriculture, with the remainder zoned A-Agriculture.

Development Cell 11 is zoned A (sp) Special Agriculture with the exception of the Western Clay Products site in the southeast corner which will be zoned I-Industrial.

Development Cells 12 and 13 are zoned A-Agriculture.

Soil Capability

Land within the southwest sector is considered to be Class 2 agricultural land, meaning that the soil has only moderate limitations that restrict the range of crops or require moderate conservation practices.

The land has moderately severe limitations for waterfowl (Class 5), resulting from the flatness of the land limiting the development of permanent wetlands.

The land has low capability for outdoor recreation (Class 6) in that the area lacks natural quality and features, but has natural qualities to generate and sustain low annual use based on dispersed activities.

The land presents a severe limitation for deer production (Class 6) because of the flatness of the land.

Flood Plain Condition

There is no flood plain regime affecting the four development cells in the southwest quadrant.

Soil Conditions

Development Cell 10 is generally not considered a risk area in terms of aquifer contamination. The southwest portion of the cell is rated as being fairly sensitive for aquifer contamination.

Development Cells 11, 12, and 13 are considered to be fairly sensitive in terms of aquifer contamination.

Development Cell 10 has 2 to 8 metres of clay with the exception of the southwest corner, which has greater than 8 metres of clay.

Development Cell 11 has a clay cover which ranges from 4 metres in the northwest to greater than 8 meters in the east central area, and 2-8 metres of clay in the southern part.

Development Cell 13 has less than 2 metres of clay cover in the northwest corner, increasing to greater than 8 metres in the central area, and subsequently decreasing to 2 to 8 metres in the most southerly portion of the development cell.

Pipeline-Hydro Rights-of-way

Development Cell 10 has two pipelines which run parallel to the Trans-Canada Highway in the southern halves of Sections 2 and 3. The most northerly of the two lines is an SPC line. The Trans-Canada Pipeline to the south, also has a line which runs perpendicular to the principal line, and runs south of the Trans-Canada Highway. These two pipelines present a fairly moderate design constraint should this area be considered for future forms of urban development.

Development Cell 11 has an SPC pipeline which traverses the cell near the quarter section line of Section 21. The presence of this line does not appear to represent a significant constraint to development in this area.

Rail Relocation Impact

Development Cell 13 will be affected by rail relocation, since the proposed rail alignment will form the west boundary of the development cell. Acceptance of a buffer policy restricting residential development within 300 metres (1,000 feet) of the centre line of the track could restrict the range of development options for this area.

Roadway System

There is currently no road system developed within Development Cell 10 although the Trans-Canada Highway to the south and the Lewvan Expressway along the eastern boundary are major roadways in the area. The extension of Gordon Road and Parliament Avenue would facilitate east-west movement from the development cells. There is no provision in the Recommended Road Network Plan for a major north-south access road west of the Lewvan.

The extension of Dewdney Avenue to the west would provide an arterial access to Development Cells 11, 12 and 13. North-south and east-west movements would be facilitated through the development of the Courtney Street arterial, and the east-west arterial linking into Saskatchewan Drive and Victoria Avenue.

A-3 NORTHWEST QUADRANT

Location

The northwest quadrant lies north of Dewdney Avenue and west of Albert Street. There are twelve development cells in this quadrant containing a total of 1,714 hectares (4,237 acres). Seven of the development cells are totally or partially contained within the Northwest Sector Concept Plan boundaries. Development cells not contained in the Northwest Sector Plan are 14, 15, 16, 19 and 25.

Present Use and Planning Status

With the exception of the following, land in the Northwest Sector is used for agricultural purposes.

Development Cell 15 (Section 28) contains two non-agricultural sites consisting of Roscoe Demolition and the Saskatchewan Boys' School. Development Cell 14 (Section 29) is a major industrial site containing the Cominco fertilizer plant, and settling ponds. Development Cell 16 in Section 32 has the North American Car Corporation Limited in the southeast quarter. Development Cell 19 in Section 32 has O and T Poultry Farm operations within its boundaries. Development Cell 12, which includes part of Section 25, includes IPSCO pipe storage yards and a City Reservoir.

Development Cells 21 and 22 are in the process of receiving subdivision approval for residential use.

Development Cells 14, 15, 16 and 19 are located in the R.M. of Sherwood and are subject to the provisions of the Regina Planning District Zoning Bylaw. The recently approved District Bylaw has Development Cell 14, the site of the Cominco Fertilizer plant being zoned I-Industrial with the exception of the north 1/2 of the northeast quarter of Section 29 which will be zoned A (sp)-Special Agriculture.

Development Cell 15 (Section 28) is zoned A (sp)-Special Agriculture with the exception of the Roscoe Demoliton which is zoned I-Industrial.

Development Cell 16 is zoned A-Agriculture and A (sp)-Special Agriculture with the exception of the North American Car Corporation site which is zoned I-Industrial.

Development Cell 19 is zoned A-Agriculture.

The western and northerly parts of Cell 20 are in the R.M. of Sherwood and are zoned A-Agricultural.

The northern 900 feet of Development Cells 21, 22, 23, 24 and 25 is located in the R.M. of Sherwood. Zoning for this area is A-Agricultural.

Development Cell 18, within the City limits, is zoned UH-Urban Holding. The southern half of Development Cell 17 in the southwest quarter of Section 33 is zoned IC-Heavy Industrial.

Land in Development Cells 20, 21, 22, 23 and 24 located within the corporate limits is zoned UH-Urban Holding. Cells 21 and 22 are partially zoned PUD, with the residual being UH-Urban Holding.

Development Cell 25, located in the R.M. of Sherwood, is zoned A-Agricultural.

The major portion of Development Cells 20 to 24 inclusive is included in the Northwest Sector Plan, a companion document to the Municipal Development Plan which sets out proposed land uses in the area.

Soil Capability

Land in the northwest quadrant is generally considered to be good agricultural land, Class 2, with some Class 3 land along the Wascana Creek channel. The land has only moderate constraints which restrict the range of crops or require moderate conservation practices.

Land in the northwest quadrant is generally considered to have moderately severe limitations for waterfowl (Class 5), with the exception of lands immediately abutting Wascana Creek which have slight limitations for waterfowl (Class 3). The limitation in the latter case is the poor distribution of marshes which may prevent the development of optimum waterfowl habitat. In the former case, the limitation is the flatness of lands which limit the development or permanency of wetlands.

Land in the Northwest Sector is considered to have a low capability for outdoor recreation. The land is considered to lack the natural quality and significant features to rate higher, but have natural capability to generate and sustain low total annual use based on dispersed activities.

Land capability for deer in the northwest quadrant is rated low because the flatness of the lands is a severe topographical constraint.

Flood Plain Condition

Development Cells 16, 17, 18 and 19 are all affected by the flood regime of the Wascana Creek. Given the meandering creek bed, a significant amount of land in the area could be considered as being an "environmentally sensitive area".

Soil Conditions

In the Northwest Sector, Development Cells 16 to 22 are considered to be fairly sensitive in terms of potential aquifer contamination. Development Cells 23, 24, and 25 are considered fairly to moderately sensitive.

Development Cells 16 and 17 have greater than 8 metres of clay cover over the aquifer. Development Cells 18 and 19 have 4 or more metres of clay cover with some variation within Development Cell 18. Development Cell 20 has greater than 6 metres of clay cover. Development Cells 21 and 22 have 2 to 8 metres of clay cover. Development Cells 23 and 24 have 2 to 8 metres of clay cover in the north half of the cells as compared to greater than 8 metres on the southern half of these two cells. Development Cell 15 has approximately 4 metres of clay cover.

Pipeline - Hydro Rights-of-way

Development Cell 18 has a Saskatchewan Power Corporation pipeline cutting across the southeast corner of the Development Cell.

Development Cell 20 is bisected by an SPC line and an Interprovincial line which runs east-west through the northern part of the City. These two lines also form the southern boundary of Development Cells 23 and 24.

Rail Relocation Impact

The proposed western rail corridor will form the western boundary of Development Cells 16, 19 and 20. The northern rail corridor will form the northern boundary of Development Cells 21, 22, 23, 24 and 25. As significant as the rail itself is the buffer strip proposed along the rail track. At this time a proposed buffer strip of 300 metres (1,000 feet) measured from the centre line of the tracks would exclude residential development.

Roadway System

Development Cells 16, 17, 18 and 19, would rely on extensions of Dewdney Avenue and 9th Avenue North as the principal arterials for east-west vehicular movements. Sherwood Drive and First Avenue North would also serve an arterial roadway function. The principal north-south route in this part of the City would be Courtney Street.

Development Cell 20 would be served by Courtney Street as the principal north-south arterial with Rochdale Boulevard, Whelan Drive and 9th Avenue North being the principal east-west arterials. Rink Avenue will perform a lesser function.

Development Cells 21, 22, 23 and 24 will rely on Rochdale Boulevard as the principal east-west arterial. North-south access to these development cells can be facilitated through the extension of the current north-south arterials into the area. These roadways include Courtney Street and McCarthy Boulevard.

A-4 NORTHEAST QUADRANT

Location

The southeast quadrant, located east of Albert Street and north of Victoria Avenue, has nine development cells containing a total of 1,843 hectares (4,553 acres)

There is no sector plan for the northeast area. The developed peripheral edge of the Northeast Sector, north of the CPR mainline, is used primarily for industrial purposes. The area features a myriad of rail tracks used to serve the industrial uses. Additionally, long term plans for both CP and CN rail relocation to an area immediately north of Development Cells 27 and 28 will have a significant long term impact on the City and future use of land lying beyond the City.

Present Use and Planning Status

Development Cell 26 includes a strip of four highway commercial uses fronting on Highway #6. The major portion of the land in Cell 26 is used for agricultural purposes. Cell 26 is zoned A-Agriculture with the exception of land in the north half of Section 7 on the northeast side which is zoned I-Industrial.

Industrial operations in Development Cell 27 include City and Country Auto Wreckers, Co-op Refinery, and Producer's Pipeline. The majority of the land is used for agricultural purposes. Zoning bylaw amendments recognize the present industrial operations in Section 5 with the rest of the land zoned A-Agricultural.

Development Cell 28 is currently used and zoned for agriculture.

Development Cell 29 includes the City's waste disposal site as the principal non-agricultural use. The residual of the cell is used for agriculture. The portion of Cell 29 in the R.M. of Sherwood is zoned A-Agricultural, while the two portions in the City are zoned IC-Heavy Industrial and UH-Urban Holding.

Development Cells 30, 31 and 32 are used for farming. Zoning for these areas is A-Agricultural.

Development Cells 1 and 2 are used for farming with the exception of the highway commercial strip along Highway #2. This highway commercial strip contains approximately 19 business operations, ranging from farm implement dealers to mobile home sales. There are also four residences on the most easterly part of the strip.

Development Cell 1 is within the City and is currently zoned UH-Urban Holding. A concept plan (Parkridge) for the northern part of Cell 1, has been approved. The Eastgate Commercial Park for the southern half of Cell 1 is an approved subdivision plan.

The majority of development Cell 2 is zoned A-Agriculture under the Regina District Zoning Bylaw. The highway commercial strip is zoned C-Commercial.

Soil Capability

Land in the northeast quadrant is Class 2 agricultural land. The soil has moderate limitations that restrict the range of crops or require moderate conservation practices.

The flatness of the land presents a moderately severe limitation (Class 5) for waterfowl due to the limited development of permanent wetlands for wildlife habitat.

The land has low capability for outdoor recreation (Class 6) because the area lacks natural quality and features, but has qualities to generate and sustain low annual use based on dispersed activities.

The flatness of the land severely limits the production and potential for a significant deer population.

Floodplain Condition

Development Cells 1 and 2 are affected by the floodplain regime of Pilot Butte Creek. This condition does not constrain a significant amount of land, but does provide an opportunity for open space development.

Soil Conditions

Development Cell 26 is considered to be moderately sensitive regarding aquifer contamination risk. The area features 6 or more metres of clay cover over the aquifer.

Cell 27 is fairly sensitive to aquifer contamination in the southern two-thirds of the cell and moderately sensitive in the northern two-thirds of the cell. There is approximately 6 metres of clay cover on Cell 27.

Cell 28 with approximately 6 metres of clay cover, is considered a moderately sensitive area in terms of potential aquifer contamination.

Cell 29 has approximately 4 to 6 metres of clay cover over the majority of the site, with the exception of a small portion of the site which has 2 metres of clay cover. Aquifer pollution sensitivity varies from fairly sensitive in the southwest increasing to highly sensitive in the northeast part of the site.

Development Cells 30 and 31 have approximately 4 to 6 metres of clay cover. Cell 30 is primarily moderately sensitive to aquifer contamination, while Cell 32 is considered a lesser risk, being categorized as fairly sensitive.

Development Cell 32 is considered fairly sensitive for purposes of aquifer contamination. A clay cover of 8 metres or more exists over this site.

Development Cells 1 and 2 have a clay cover which is generally 6 or more metres in depth. These two cells are considered to be fairly sensitive for aquifer contamination.

Rail Relocation Impact

Rail relocation impact is the major factor affecting the delineation of the various development cells. First, the location of the corridor in the northeast defines the outer boundary of the northeast quadrant for purposes of this analysis. Second, the proposed locations of the rail yard combined with the proposed rail service system into the area provide the basis for the configuration of the cells.

Roadway System

The principal roadways to service the northeast area are Prince of Wales Drive, Ross Avenue, and McDonald Street as provided for on the Recommended Road Network.

JS/ym/1417D

A-5 DEVELOPMENT CELL-LAND AREAS

DEVELOPMENT CELL	ACRES	HECTARES
1	360	146
2	1,470	595
3	125	50
4	1,865	755
5	852	345
6	172	70
7	438	177
8	73	29
9	362	146
10	2,127	861
11	550	222
12	309	125
13	335	135
14	640	259
15	490	198
16	68	27
17	85	34
18	512	207
19	104	42
20	943	382
21	188	76
22	126	51
23	601	243
24	406	164
25	74	30
26	362	146
27	540	218
28	96	39
29	718	290
30	515	289
31	92	37
32	400	162

JS/ym/1417D

APPENDIX B

CAPITAL COST PROJECTS - BACKGROUND MATERIAL

NORTHWEST QUADRANT - CAPITAL REQUIREMENTS

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE
STORM DRAINAGE	1984	Storm Trunk Sewer Rochdale Boulevard McCarthy Boulevard to 400m East	220,000	0	$220,000 Hectarage Assessment
	1984	Storm Trunk Sewer McCarthy Boulevard-Rochdale Boulevard to Whelan Drive	170,000	0	$170,000 Hectarage Assessment
	1985	Storm Trunk Sewer-Northwest McCarthy Boulevard-Rochdale Boulevard to Whelan Drive	156,000	0	$156,000 Hectarage Assessment
	1986	Storm Trunk Sewer-Northwest West of Courtney Street- Wascana Creek to 9th Avenue North	275,000	0	$275,000 Hectarage Assessment
	1986	Storm Trunk Sewer-Northwest Rochdale Boulevard-McIntosh Street to 400m West	204,000	0	$204,000 Hectarage Assessment
	1986	Storm Retention Pond (1) (E. of McCarthy-800m North of Rochdale	630,000	0	$630,000 Hectarage Assessment
	1988	Storm Trunk Sewer-Northwest Rochdale Blvd. (McIntosh to Wells St.)	200,000	0	$200,000 Hectarage Assessment
		Storm Retention Ponds (2) W. of McIntosh-200m N. of Rochdale W. of Courtney-N. of 9th Ave. North	1,260,000	0	$1,260,000 Hectarage Assessment

NORTHWEST QUADRANT - CAPITAL REQUIREMENTS

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE
STORM DRAINAGE NON-BUDGET ITEMS		Storm Trunk Sewer-Northwest Wells Street to 400m East @ $550/m	605,000	0	To be determined
		Retention Lakes (2) (Between Pasqua and Albert Streets)	1,260,000	0	To be determined
		Storm Trunk-West of Courtney-N. of 9th Avenue 1,580 m @ $600/m 800 m @ $530/m	1,388,000	0	To be determined
Sub-total			(6,368,000)		

NORTHWEST QUADRANT - CAPITAL REQUIREMENTS

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE	
STREETS & BRIDGES	1985	Dewdney Avenue Upgrading	415,000	104,000	207,000 104,000	Urban Assistance Hectarage Assessment
	1986	9th Avenue North Widening	460,000	230,000	115,000 115,000	Urban Assistance Hectarage Assessment
	1986	Dewdney Avenue Upgrading	580,000	145,000	290,000 145,000	Urban Assistance Hectarage Assessment
	1986	McCarthy Boulevard (East side) Rochdale to Whelan	175,000	0	73,000 102,000	Urban Assistance Hectarage Assessment
	1987	Courtney Street (East side) Sherwood Drive to 9th Avenue North	225,000	0	90,000 135,000	Urban Assistance Hectarage Assessment
	1987	Dewdney Avenue Upgrading	485,000	121,000	243,000 121,000	Urban Assistance Hectarage Assessment
	1988	Dewdney Avenue Upgrading	600,000	150,000	300,000 150,000	Urban Assistance Hectarage Assessment
	1984	Courtney Street - 9th Avenue & Interchange	290,000		145,000 145,000	Urban Assistance Hectarage Assessment
	1985**	Rochdale Boulevard-McCarthy to 400m East	355,000	43,000	170,000 142,000	Urban Assistance Prepaid local improv.
	1986**	Rochdale Boulevard-McIntosh to 400m East	354,000	42,000	170,000 142,000	Urban Assistance Prepaid Local Improv.

NORTHWEST QUADRANT - CAPITAL REQUIREMENTS

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE
	1988**	Rochdale-McIntosh to 400m East	355,000	41,000	170,000 Urban Assistance 144,000 Prepaid Local Improve.
STREETS (Non-Budget Items)		McCarthy Boulevard Extension (Rochdale to Whelan)	204,000		
		Courtney St. (Sherwood to 9th Avenue) W. side	163,000		
		Courtney St. (Dewdney to First Avenue)	1,104,000		
		Courtney St. (First Ave. to Sherwood)	342,000		
		Courtney St. (9th Avenue to Rink)	245,000		
		Courtney St. (Rink to Whelan)	581,000		
		Rochdale - Pasqua to 400m West	408,000		
		Rochdale - Pasqua to Argyle	218,000		
Sub-total			(7,559,000)		

* Note: Lewvan and Ring Road interchange at $6.8 Million have not been included as it was determined that this project could not be directly assigned to northwest development but served a substantially greater function.

** Denotes a local improvement project.

NORTHWEST QUADRANT - CAPITAL REQUIREMENTS

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE
WATER (Self-Financing)	1985	Water Feeder Main Northwest-Pasqua Street 9th Avenue North to Pasqua Gate	130,000	0	$130,000 Hectarage Assessment
WATER Non-Budget		Pasqua Gate to Whelan 1,000m (16") @ $213/m	213,000		To be determined
		Courtney to Pasqua 3,220m (16") @ $213/m	686,000		To be determined
Sub-total			(1,029,000)		
SEWAGE TREATMENT (Self-Financing)	1984	Sanitary Trunk-Rochdale Boulevard-McCarthy Boulevard to 400m East ($207/m)	83,000	0	83,000 Hectarage Assessment
	1986	Sanitary Trunk-Northwest Rochdale Boulevard-McIntosh Street to 400m West (195/ m)	78,000	0	78,000 Hectarage Assessment
	1988	Sanitary Trunk-Northwest Rochdale Boulevard-McIntosh Street to Wells Street	44,000	0	44,000 Hectarage Assessment
SEWAGE TREATMENT Non-Budget		Sanitary Sewer-Northwest Wells St. to 1,100m East ($210/ m)	231,000		To be determined
		Sanitary Trunk Sewers-West of Courtney (3,580m @ $210/ m)	752,000		To be determined
			(1,188,000)		

NORTHEAST QUADRANT - CAPITAL REQUIREMENTS

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE	
STORM DRAINAGE	1984	Dredge Pilot Butte Creek	180,000	0	180,000	Hectarage Assessment
Non-budget		Storm Trunk Lines to Pilot Butte Creek 2 @ 610m @ $850/m	1,037,000		To be determined	
		Pilot Butte Creek Dredging-Extension 3,000m @ $125/m	375,000		To be determined	
		Victoria Avenue Extension 3,350 m @ $850/m	2,848,000		To be determined	
		Two Creek crossings @ $75,000 each	150,000		To be determined	
Sub-total			(4,590,000)			
SEWAGE TREATMENT	1987	Sanitary Trunk-Southeast	80,000	0	80,000	Hectarage Assessment
Non-budget		Sanitary Trunk-(Extension from Dewdney Avenue) (3,400 m @ $200/m	680,000			To be determined
Sub-total			(760,000)			
STREETS AND BRIDGES	1984	Fleet Street (East side) MacRae Bay to Turvey Road	570,000	0	275,000 295,000	Urban Assistance Property sales Capital-Industrial
	1985**	Ross Avenue (North-South) Sioux Street to MacRae Bay	475,000	0	223,000 252,000	Urban Assistance Property sales Capital-Industrial
	1987**	Fleet Street (West-South) MacRae Bay to Turvey Road	564,000	0	268,000 296,000	Urban Assistance Property Sales Capital-Industrial
	1984	Dewdney Avenue and Ring Road Half diamond ramp	700,000	185,000	240,000 175,000	Urban Assistance Hectarage Assessment
	1984	Ross Avenue and Ring Road Half diamond ramp	580,000	155,000	280,000 145,000	Urban Assistance Hectarage Assessment
Non-budget		Victoria Avenue-Outer Road-Northern Extension (2,700m @ $1,020m)	2,754,000		To be determined	

NORTHEAST QUADRANT - CAPITAL REQUIREMENTS

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE	
	1984**	Victoria Avenue North Service Road Prince of Wales Drive-600m East	290,000	30,000	146,000 147,000	Urban Assistance Prepaid Local Improve.
	1985**	Victoria Avenue-North Service Road Prince of Wales Drive to 650m West	290,000	29,000	195,000 116,000	Urban Assistance Prepaid Local Improve.
	1987**	Winnipeg Street-First Avenue to Seventh Avenue N.	1,070,000	0 427,000 (Debenture)	537,000 106,000	Urban Assistance Prepaid Local Improve.
	Sub-total:		(7,293,000)			
WATER	Non-budget	Victoria Avenue Watermain 5000m @ $120/m	600,000			
	Sub-Total:		(600,000)			

** Denotes a Local Improvement project.

SOUTHWEST QUADRANT - CAPITAL REQUIREMENTS

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE	
STREETS AND BRIDGES	1986	Parliament Avenue-Argyle to Pasqua Street	282,000	142,000	70,000 70,000	Urban Assistance Hectarage Assessment
Sub-total			(282,000)	142,000	140,000	

SOUTHEAST QUADRANT - CAPITAL REQUIREMENTS

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE	
STORM DRAINAGE	1984-85	Storm Retention Lake (Section 15)	580,000	0	580,000	Capital Trust Fund
	1985	Storm Retention Lake (See 1984)	490,000	0	490,000	Hectarage Assessment
	1984	Storm Trunk Sewer S.E. Prince of Wales Drive-opposite lake to Arena Rd.	190,000	0	190,000	Hectarage Assessment
	1986	Storm Trunk Sewer East of Prince of Wales Drive Wascana Creek to Assiniboine Avenue	215,000	0	490,000	Capital Trust Fund
1988		Storm Trunk Sewer S.E. Retention Lake to Arena Road	400,000	0	215,000	Hectarage Assessment
Non-Budget		Chuka Creek (Total Trunk Sewers-Remaining SE Sector and Extension	13,500,000			
Sub-total			(15,375,000)			
WATER (Self-Financing)	1985	Water Feeder Main-Southeast Arcola Avenue from Prince of Wales Drive to 600m East	120,000	0	120,000	Hectarage Assessment
Non-budget Items		Water Loop-Prince of Wales Drive/Arcola to Sec. 11, 1, North to CNR r.o.w., west to Prince of Wales Drive - 7,550m @ $200/m	510,000		To be determined	
Sub-total			(1,630,000)			

SOUTHEAST QUADRANT - CAPITAL REQUIREMENTS

PROJECT STREETS	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE	
	1984	Prince of Wales Drive- W. Side-Arcola Avenue to Truesdale W. side-Assiniboine Avenue to Scenic Drive E. side-Victoria Ave. to North Service Road	$1,105,000	0	$440,000 665,000	Urban Assistance Hectarage Assessment
	1984	Assiniboine Avenue Flyover The total funding is 2.3 Million, of which 1.9 Million was funded in 1979, 1982 & 1983	400,000	0	130,000 270,000	Urban Assistance Hectarage Assessment
	1984	Arcola Avenue Upgrading (#1 Bypass to Victoria Avenue) (1984 completion-Total Cost $2,995,000)	2,995,000	793,000	1,453,000 749,000	Urban Assistance Hectarage Assessment
	1985	Prince of Wales Drive W. side-Truesdale Drive to Arena Road	270,000	0	165,000 105,000	Hectarage Assessment Urban Assistance
	1986	Prince of Wales Drive, Intersection of Prince of Wales Drive & Arcola Avenue	350,000	0	175,000 175,000	Urban Assistance Hectarage Assessment
	1987	Prince of Wales Drive-E. side- Arcola Avenue to Truesdale Drive	495,000	0	190,000 305,000	Urban Assistance Hectarage Assessment
	1988	Prince of Wales Drive W. side-Arena Road to N. section line, Sec. 15; Intersection of Prince of Wales Drive and Victoria Avenue (1984) E. side-Arcola Ave. to Assiniboine Avenue	1,010,000	0	425,000 585,000	Urban Assistance Hectarage Assessment
	1984	Arena Road-Prince of Wales Drive to 300m East	173,000	17,000	87,000 69,000	Urban Assistance Prepaid Local Improve.
STREETS Non-Budget		Mid East Road	1,006,000			
		Outer Drive-Arcola to Victoria	2,083,000			
		Arena Road-Prince of wales Drive (less 200m)	749,000			
Sub-total			(10,636,000)			

* Denotes Local Improvement Project

SOUTHEAST QUADRANT - CAPITAL REQUIREMENTS (Cont'd.)

PROJECT	YEAR	PROJECT DESCRIPTION	ESTIMATED CAPITAL COST (City Manager Recommendation)	ESTIMATED CITY COST	OTHER ASSISTANCE
SEWAGE TREATMENT	1984	Sanitary Trunk-Southeast lift station (SW 1/4 Section 10)	220,000	0	220,000 Hectarage Assessment
Non-Budget items:		Sanitary Trunk-Southeast lift station (NW1/4 Section 2 - approximate location)	750,000	0	To be determined
		Sanitary Trunk-Arcola Avenue Extention (800m @ 200/m	160,000		
		C.N. Extension 2400m of 21" @ $200/m	480,000		
		Sanitary Trunk 3,220 m of 18" @ $200/m	644,000		
		Sanitary Trunk 1,600m of 14" @ $150/m	240,000		
		Sewerage, Arena Road Pumping Station (Arena Road and Pilot Butte Creek)	150,000		
Sub-Total			(2,644,000)		